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September 19, 2001

Commissioner for Patents  
Washington, D.C. 20231

Re: U.S. Patent Application  
Inventor: Foster et al.  
Entitled: APPARATUS AND METHOD FOR RETENTION OF  
NON-THERMAL PLASMA  
Filed: June 14, 2001  
Serial No.: 09/881,277  
Attorney Docket No: DP-302466

Sir:

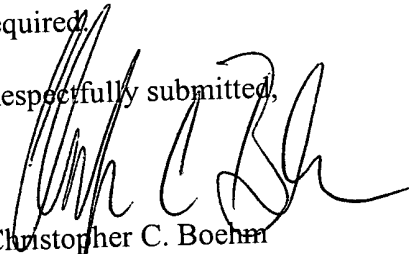
We enclose herewith:

- ☒ Information Disclosure Citation
- ☒ Copy of 58 references
- ☒ Acknowledgement postcard

The Commissioner is hereby authorized to charge payment of the fees associated with this communication or credit any overpayment to Deposit Account No. 50-0831.

Applicant hereby petitions under 37 CFR 1.136 and other applicable rules to have the response period extended the number of months necessary to render the attached communication timely in the event a petition is required.

Respectfully submitted,

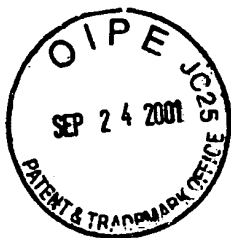
  
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## INFORMATION DISCLOSURE CITATION WITH DOCUMENT COPIES

Atty. Docket No.  
DP-302466Serial No.  
09/881,277Applicant  
Foster, et al.Filing Date  
June 14, 2001

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## U.S. PATENT DOCUMENTS

Exam. Init.	Document Number	Date	Name	Class	Sub Class	Filing Date (if approp.)
	3,450,617	06/17/1969	Hellund, E.L.			08/22/1966
	3,541,379	11/17/1970	Holden, C. B.			09/11/1967
	3,979,193	09/07/1976	Sikich			11/29/1974
	4,695,358	09/22/1987	Mizuno, et al.	204	174	11/08/1985
	4,795,617	01/03/1989	O'Hare	422	186.15	01/16/1984
	4,813,231	03/21/1989	Bykowski	60	274	10/07/1987
	4,945,721	08/07/1990	Cornwell, et al.	60	274	04/14/1988
	5,044,157	09/03/1991	Henkel	60	274	10/13/1989

## FOREIGN PATENT DOCUMENTS

Document Number	Date	Country	Class	Subclass	Translation Yes   No
DE3708508	16.03.87	Germany			NO
GB2274412	14.12.93	Great Britain			
CN1027828C	95.01.08	China			YES

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Louis A. Rosocha; Los Alamos National Laboratory; *Nonthermal Plasma Applications to Pollution Control and Environmental Remediation*; First International Conference on Advanced Oxidation Technologies for Water and Air Remediation; London, Ontario, Canada, June 25-30, 1994.

Wachsman, Eric; Palitha Jayaweera; Victor L.K. Wong; Jon G. McCarty; Gopala Krishnan; Angel Sanjurjo; *Solid-Oxide Electrochemical Reduction and Selective Absorption of NO<sub>x</sub>*; Proceedings of the 1995 Diesel Engine Emissions Reduction Workshop, San Diego California, July 24-27, 1995; U.S. Department of Energy.

Examiner

Date Considered

\*Examiner: Initial if reference considered whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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## U.S. PATENT DOCUMENTS

Exam. Init.	Document Number	Date	Name	Class	Sub Class	Filing Date (if approp.)
	5,141,714	08/25/1992	Obuchi, et al.	422	174	07/31/1990
	5,147,516	09/15/1992	Mathur, et al.	204	177	07/19/1990
	5,155,994	10/20/1992	Muraki, et al.	60	275	01/21/1992
	5,236,672	08/17/1993	Nunez, et al.	422	186.04	12/18/1991
	5,240,575	08/31/1993	Mathur, et al.	204	177	01/23/1992
	5,324,492	06/28/1994	Masuda, et al.	423	235	07/22/1992
	5,419,123	05/30/1995	Masters	60	274	03/17/1994
	5,427,747	06/27/1995	Kong, et al.	422	186	06/08/1994

## FOREIGN PATENT DOCUMENTS

Document Number	Date	Country	Class	Subclass	Translation Yes   No
JP63242323	1988.10.07	Japan			NO
JP4276167	1992.10.01	Japan			YES
JP6015143	1994.01.25	Japan			NO

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Huang, Shih-feng; Satoshi Ihara; Masashi Ishimine; Saburoh Satoh; Chobei Yamabe; *Reduction of NO<sub>x</sub> by a DC Positive Streamer Reactor with a Wire-to-Plane Electrodes*; Report of the Faculty of Science and Engineering, Saga University, Vol. 25, 1997; p 27-31.

Hammer, Thomas; Stefan Broer; 982428; *Plasma Enhanced Selective Catalytic Reduction of NO<sub>x</sub> for Diesel Cars*; Copyright 1998 Society of Automotive Engineers, Inc. p. 7-12.

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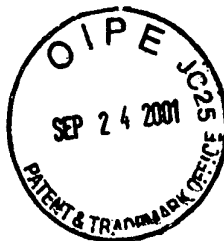
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## U.S. PATENT DOCUMENTS

Exam. Init.	Document Number	Date	Name	Class	Sub Class	Filing Date (if approp.)
	5,440,876	08/15/1995	Bayliss, et al.	60	274	12/15/1993
	5,458,748	10/17/1995	Breault, et al.	204	177	09/20/1993
	5,492,678	02/20/1996	Ota, et al.	422	174	07/20/1994
	5,603,893	02/18/1997	Gundersen, et al.	422	22	08/08/1995
	5,695,619	12/09/1997	Williamson, et al.	204	165	05/25/1995
	5,746,984	05/05/1998	Hoard	422	169	06/28/1996
	5,843,383	12/01/1998	Williamson, et al.	422	186.04	05/30/1997
	5,746,051	05/05/1998	Kieser, et al.	60	275	

## FOREIGN PATENT DOCUMENTS

Document Number	Date	Country	Class	Subclass	Translation Yes   No
JP6099031	1994.04.12	Japan			NO
JP6106025	1994.04.19	Japan			NO
JP6178914	1994.06.28	Japan			NO

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Hoard, John; M. Lou Balmer; 982429; *Analysis of Plasma-Catalysis for Diesel NO<sub>x</sub> Remediation*; Copyright 1998 Society of Automotive Engineers, Inc.; p. 13-19.

McLarnon, C.R.; V.K. Mathur; University of New Hampshire, *Nitrogen Oxide Decomposition by Barrier Discharge*; 1999 Diesel Engine Emissions Reduction Workshop, Maine Maritime Academy, Castine, Maine, July 5-9, 1999; IV-73-IV-78.

Examiner

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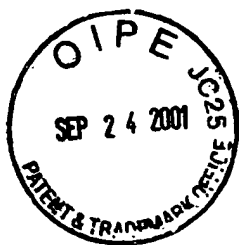
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09/881,777Applicant  
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June 14, 2001

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## U.S. PATENT DOCUMENTS

Exam. Init.	Document Number	Date	Name	Class	Sub Class	Filing Date (if approp.)
	6,253,544	07/03/2001	Miller, et al.	60	275	10/07/1999
	6,264,899	07/24/2001	Caren, et al.	422	186.3	03/01/2000

## FOREIGN PATENT DOCUMENTS

Document Number	Date	Country	Class	Subclass	Translation Yes   No
JP6182150	1994.07.05	Japan			NO
JP6269635	1994.09.27	Japan			NO
JP486974A		Japan			YES

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Kupe, J.; Delphi Automotive Systems; *Non-Thermal Plasma Emission System for Diesel Exhaust After Treatment*; 1999 Diesel Engine Emissions Reduction Workshop; Maine Maritime Academy, Castine Maine, July 5-9, 1999; IV-29-64.

Hemingway, Mark D.; Dave Goulette; Gene Ripley; Tom Thoreson; Joachim Kupe; Darrell Herling; Suresh Baskaran; Monty Smith; Del Lessor and Jud Virden; 1999-01-3639 *Evaluation of a Non-Thermal Plasma System for Remediation of NO<sub>x</sub> in Diesel Exhaust*; Copyright 1999, Society of Automotive Engineers, Inc.; p. 59-65.

Hammer, Thomas; Tetsuo Kishimoto; Hans Miessner; Rolf Rudolph; 1999-01-3632; *Plasma Enhanced Selective Catalytic Reduction: Kinetics of NO<sub>x</sub>-Removal and Byproduct Formation*; Copyright 1999 Society of Automotive Engineers, Inc. p. 1-7.

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## FOREIGN PATENT DOCUMENTS

Exam. Init.	Document Number	Date	Country	Class	Subclass	Translation	
						Yes	No
	0043477A2	20.06.81	[EPO] Germany				NO
	0585047A2	18.08.93	[EPO] Great Britain				
	EP0840838B1	18.07.96	[EPO] Germany				NO
	WO94/06543	31.03.94	[PCT] Germany				NO
	WO99/18333	15.04.99	[PCT] United States				
	WO00/04989	03.02.00	[PCT] United States				
	WO00/50743	31.08.00	[PCT] United States				
	WO00/43469	27.07.00	[PCT] United States				

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

Roth, Greg; Jim Rush; Vic Nowak; Mike Tyle; 2000-01-1845; *A Compact and Robust Corona Discharge Device (CDD™) for Generating Non-Thermal Plasma in Automotive Exhaust*; Copyright 2000 CEC and SAE International; p. 21-34.

Herling, Darrell; Monty Smith, Mark Hemingway, David Goulette, Tom Silvis; 2000-01-2899; *Evaluation of Corona Reactors of Several Geometries for a Plasma Assisted Nitrogen Oxide Emission Reduction Device*; Copyright 2000, Society of Automotive Engineers, Inc. p. 49-58.

Fisher, Galen B; Craig L DiMaggio; Aleksey Yezerets; Mayfair C. Kung; Harold H. Kung; Suresh Baskaran; John G. Frye; Monty R. Smith; Darrell R. Herling; William J. LeBarge; Joachim Kupe; 2000-01-2965  
*Mechanistic Studies of the Catalytic Chemistry of NO<sub>x</sub> in Laboratory Plasma-Catalyst Reactors*; Copyright 2000 Society of Automotive Engineers, Inc. p. 79-87.

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